UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,526	03/15/2001	Ilija Hadzic	1	4517

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EXAMINER
CHO, HONG SOL

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/809,526	HADZIC, IIIJA
	Examiner	**Art Unit**	
	Hong Cho	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>14 April 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is

closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-38</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16, 18-31 and 33-38</u> is/are rejected.

7)☒ Claim(s) <u>17 and 32</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 April 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

         application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This office action is in response to the amendment filed on 4/14/2005. Claims 1-

38 are pending in the instant application.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e)

that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by
the applicant for patent, except that an international application filed under the treaty defined in
section 351(a) shall have the effects for purposes of this subsection of an application filed in the
United States only if the international application designated the United States and was published
under Article 21(2) of such treaty in the English language.

3.   Claim 15, 16, and 18-20 are rejected under 35 U.S.C. 102(e) as being

unpatentable over Yip et al (U.S 6618388), hereinafter referred to as Yip.

Re claims 15, 16, and 18, Yip discloses an edge switch in MAN having

ports connected to the customer domain where Ethernet packets are generated and

transmitted to the receiving customer through the virtual MAN (*an edge switch in*

metropolitan area Ethernet network with ports coupled to the local area Ethernet

network and transmitting Ethernet packets to one of local area Ethernet networks,

figure 1, element 100).

Re claims 15, 19, and 20, Yip discloses an edge switch forwarding the

stripped frame in accordance with the destination address and forwarding data

stored internally to the switch (*establishing an association between addresses of*

local area Ethernet network and metropolitan area Ethernet network, column 6,

lines 3-10). It is inherent that the edge switch should have ports with memory,

where packets are queued before transmission, so that incoming data from input

ports are channeled to the specific output ports after performing a look-up in a

switching or routing table.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as
set forth in section 102 of this title, if the differences between the subject matter sought to be
patented and the prior art are such that the subject matter as a whole would have been obvious at
the time the invention was made to a person having ordinary skill in the art to which said subject
matter pertains. Patentability shall not be negatived by the manner in which the invention was
made.

5.   Claims 1-14, 28-31, and 33-38 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Levenson et al (U.S 6807172), hereinafter referred to as

Levenson, in view of Yip.

Re claims 1, 4, and 28-30, Levenson discloses port circuitry loading its

own source index into the incoming frame (*assigning the source address of*

encapsulating Ethernet frame to be the address of the port at which packet was

received, figure 6; column 10, lines 42-44). Levenson fails to disclose

encapsulating Ethernet packets, which are transported over a single MAN,

received at an edge switch. However, Yip discloses a Metropolitan Area Network

(MAN) including edge switches and virtual local area networks where Ethernet

packets are generated (figure 1, element 100). Yip discloses encapsulating

Ethernet packets, which are transported over a single MAN, received at an edge

switch (*encapsulating contents of a first Ethernet packet received at a port of a*

switch of a metropolitan area Ethernet network in at least one encapsulating

Ethernet packet that is to traverse said metropolitan area Ethernet network,

column 1, lines 64-67; column 4, lines 5-101; lines 52-53). Encapsulation is the

inclusion of one data structure within another structure. It would have been

obvious to one having ordinary skill in the art at the time the invention was made

to implement Levenson into Yip for a network switch to switch frames within a

computer network (column 1, lines 21-24).

Re claim 2, Levenson discloses encapsulating the entire data packet

(figure 6).

Re claims 3 and 8, Levenson discloses all of the limitations of the base

claim, but fails to disclose encapsulating a portion of Ethernet packet. However,

it would have been obvious to one having ordinary skill in the art at the time the

invention was to modify Levenson to encapsulate a portion of Ethernet packet

when the encapsulation of the Ethernet packet exceeds the maximum size of

Ethernet packet and assigning a port address of the edge switch to be the address

of the source address of the encapsulating packet to comply with 1522 bytes of

Ethernet packet standard.

Re claims 4 and 5, Levenson discloses all of the limitations of the base claim, but fails to disclose encapsulating Ethernet packet at the edge switch in MAN connected to a customer domain that generates Ethernet data packet. However, Yip discloses encapsulating Ethernet packet at the edge switch (*interface between said metropolitan are Ethernet network and another Ethernet network*) in MAN (*metropolitan are Ethernet network which serves a plurality of entitles*, figure 1, element 100) connected to a customer domain that generates Ethernet data packet (*Ethernet network which serves only a single one of said entities*, figure 1, element 110). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have encapsulating of Ethernet packet and assigning of port address performed at the edge switch of Yip so that packets are encapsulated in 802.1Q/802.1D tagged format with embedded VLAN ID for switching.

Re claims 6 and 7, Levenson discloses encapsulating Ethernet packet with VLAN ID to the tagged frame (*encapsulating Ethernet packet with an entity identifier*, VLAN tag, column 10, lines 22-24).

Re claims 9 and 10, Levenson discloses port circuitry loading its own destination index into the incoming frame and use it to forward the frame to the appropriate port and onto destination (*assign encapsulating packet a destination address between the destination address of Ethernet packet and a portion of MAN*, column 15, lines 40-46).

Re claims 11-14, Levenson and Yip disclose all of the limitations of the base claim, but fail to disclose assigning an encapsulating packet as a broadcast

when said packet is a broadcast or multicast packet. However, it is well known in

the network switching system that a network switch broadcasts a frame to all

ports when a switch can't find a match in its flow control table.

Re claims 31, 35, and 36, Levenson and Yip disclose all of the limitations

of the base claim, but fail to disclose segmenting Ethernet packet into two packets

and encapsulating each packet with source and destination address. However, it

would have been obvious to one having ordinary skill in the art at the time the

invention was to modify Levenson to segment Ethernet packet into two packets

when the encapsulation of the Ethernet packet exceeds the maximum size of

Ethernet packet and assigning a port address of the edge switch to be the address

of the source address of the encapsulating packet and assigning the destination

address to the encapsulating packet to comply with 1522 bytes of Ethernet packet

standard.

Re claims 33 and 37, Levenson and Yip disclose all of the limitations of

the base claim, but fail to disclose an encapsulating packet that is segmented into

two packets with CRC bit field or assigned with frame sequence number and

reassembled at the receiving end. However, it is well known in the art that

standard Ethernet packet contain CRC bit field such as Frame Check Sequence

(FCS) so that fragmented packets are reassembled at the receiving terminal.

Re claim 34, Levenson discloses a frame encapsulated with source and

destination index (figure 6).

Re claim 38, Levenson and Yip disclose all of the limitations of the base

claim, but fail to disclose encapsulating segmented packets to conformed size of

packet length. However, it would have been obvious to one having ordinary skill in the art at the time the invention was to modify Levenson to segment Ethernet packet into two packets when the encapsulation of the Ethernet packet exceeds the maximum size of Ethernet packet and encapsulating segmented packets within the size of standard Ethernet packet to conform to the Ethernet packet standard.

Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yip in view of Levenson.

Re claim 21, Levenson and Yip disclose all of the limitations of the base claim, but fail to disclose extracting a portion of data from two segmented and encapsulated packets and reconstructing the original packet from them. However, it is well known in the network system that packets are segmented into smaller packets and reassembled at the receiving end if encapsulated packet size exceeds the maximum transfer unit.

Re claims 22-24, Yip discloses all of the limitations of the base claim, but fails to discloses encapsulating Ethernet packet with source and destination address fields. Levenson discloses adding source and destination index fields to the incoming frame (*an encapsulating packet contains source and destination field with inner packet as a payload,* figure 6). It would have been obvious to one having ordinary skill in the art at the time the invention was to encapsulate data packet of Yi to include source address from the port of an edge switch and destination address from the address of metropolitan area Ethernet network so that the encapsulated packet is forwarded to the desired destination address.

Re claims 25-27, Levenson and Yip disclose all of the limitations of the

base claim, but fail to disclose assigning an encapsulating packet as a broadcast

when said packet is a broadcast or multicast packet. However, it is well known in

the network switching system that a network switch broadcasts a frame to all

ports when a switch can't find a match in its flow control table.

Allowable Subject Matter

6.   Claims 17 and 32 are objected to as being dependent upon a rejected base claim,

but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Claim 17 is allowable over the prior art of record since the cited references taken

individually or in combination fails to particularly disclose <u>an edge switch</u>

<u>comprising a memory associating a time stamp with each said associated address</u>

<u>within said at least one local area Ethernet network and address of said ports in</u>

<u>said metropolitan area Ethernet network.</u>

Claim 32 is allowable over the prior art of record since the cited references taken

individually or in combination fails to particularly disclose <u>a method for use in</u>

<u>packet communication comprising the steps of encapsulating a first and second</u>

<u>parts in at least two respective encapsulating Ethernet packets wherein dividing</u>

<u>first and second parts taken from portions of said first packets is a function of a</u>

<u>random number generator with a prescribed distribution.</u>

Response to Arguments

7.   Applicant's arguments filed 4/14/2005 have been fully considered but they are not

persuasive.

On page 12, Applicant argues that Yip does not disclose a memory for

establishing a correspondence association between addresses within a local area

Ethernet network and addresses of those ports in the metropolitan area Ethernet

network. The Examiner respectfully disagrees. It is inherent that the edge switch

should have ports with memory, where packets are queued before transmission, so

that incoming data from input ports are channeled to the specific output ports after

performing a look-up in a switching or routing table. Therefore, the Examiner

concludes that the rejection of claims 15, 16 and 18-20 stands ~~rejected~~.

On pages 13-14, Applicant argues that Yip does not disclose placing one

packet as the payload with another packet by making an argument over the

meaning of encapsulation. The Examiner respectfully disagrees. In

telecommunication, encapsulation is defined as the inclusion of one data structure

within another structure and the process is carried out in Yip by adding the

VMAN tag to the input frame. Furthermore, it is noted that the features upon

which applicant relies (i.e., placing one packet as the payload with another packet

and removing conventional packet requirements such as a header or trailing CRC

information) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not

read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057

(Fed. Cir. 1993). Therefore, the Examiner concludes that the rejection of claims

1-14, 28-31 and 33-38 stands ~~rejected.~~

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of

time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed

within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened

statutory period, then the shortened statutory period will expire on the date the

advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will

be calculated from the mailing date of the advisory action. In no, however, event

will the statutory period for reply expire later than SIX MONTHS from the

mailing date of this final action.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- US Patent (6570875) to Hedge discloses automatic filtering and creation of
  virtual LANs among a plurality of switch ports

- US Patent (6760776) to Gallo et al discloses method for processing network
  frames by embedding network control information

10. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hong Cho whose telephone number is 571-272-

3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax

phone number for the organization where this application or proceeding is

assigned is 571-273-3088.

Information regarding the status of an application may be obtained from

the Patent Application Information Retrieval (PAIR) system. Status information

for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc
Hong Cho
Patent Examiner
6/15/2005

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